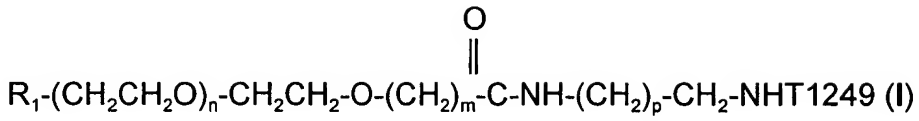
What is claimed is:

1. A compound of formula (I),



wherein

R_1 is a capping group,

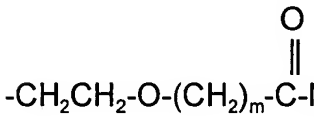
m is from 1 to 17,

n is from 10 to 1,000,

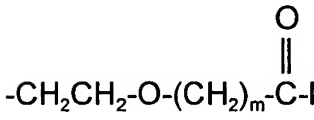
p is from 1 to 3, and

NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

2. A compound according to claim 1, wherein R_1 is selected from the group consisting of halogen, epoxide, maleimide, orthopyridyl disulfide, tosylate, isocyanate, hydrazine hydrate, cyanuric halide, N-succinimidyloxy, sulfo-N-succinimidyloxy, 1-benzotriazolyloxy, 1-imidazolyloxy, p-nitrophenyloxy, and



3. A compound according to claim 1, wherein R_1 is



4. A compound according to claim 1, wherein R_1 is selected from the group consisting of hydrogen, hydroxy, lower alkyl, lower alkoxy, lower cycloalkyl, lower alkenyl, aryl, and heteroaryl.

5. A compound according to claim 1, wherein R_1 is selected from the group consisting of methoxy, hydroxy, and benzyloxy.

6. A compound according to claim 5, wherein R_1 is methoxy.

7. A compound according to claim 1, wherein p is 3.

8. A compound according to claim 7, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

9. A compound according to claim 7, wherein m is from 1 to 14.

10. A compound according to claim 9, wherein m is from 1 to 7.

11. A compound according to claim 10, wherein m is from 1 to 4.

12. A compound according to claim 7, wherein n is from 20 to 1,000.

13. A compound according to claim 12, wherein n is from 50 to 1,000.

14. A compound according to claim 13, wherein n is from 75 to 1,000.

15. A compound according to claim 1, wherein p is 3, R_1 is methoxy, m is 1, and n is from 100 to 750.

16. A compound according to claim 1, wherein p is 2.

17. A compound according to claim 16, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

18. A compound according to claim 16, wherein m is from 1 to 14.

19. A compound according to claim 18, wherein m is from 1 to 7.

20. A compound according to claim 19, wherein m is from 1 to 4.

21. A compound according to claim 16, wherein n is from 20 to 1,000.

22. A compound according to claim 21, wherein n is from 50 to 1,000.

23. A compound according to claim 22, wherein n is from 75 to 1,000.

24. A compound according to claim 1, wherein p is 2, R_1 is methoxy, m is 1, and n is from 100 to 750.

25. A compound according to claim 1, wherein p is 1.

26. A compound according to claim 25, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

27. A compound according to claim 25, wherein m is from 1 to 14.

28. A compound according to claim 27, wherein m is from 1 to 7.

29. A compound according to claim 28, wherein m is from 1 to 4.

30. A compound according to claim 25, wherein n is from 20 to 1,000.

31. A compound according to claim 30, wherein n is from 50 to 1,000.

32. A compound according to claim 31, wherein n is from 75 to 1,000.

33. A compound according to claim 1, wherein p is 1, R_1 is methoxy, m is 1, and n is from 100 to 750.

34. A compound of formula:

$$CH_3\text{-}O\text{-}(CH_2\text{-}CH_2\text{-}O)_n\text{-}CH_2\text{-}CH_2\text{-}O\text{-}CH_2\text{-}CH_2\text{-}CH_2\text{-}NHT1249 \quad \textbf{(III)}$$

wherein n is from 10 to 1,000 and NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

35. A compound according to claim 34, wherein n is approximately 225.

36. A compound according to claim 34, wherein n is approximately 450.

37. A pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:

$$R_1\text{-}(CH_2CH_2O)_n\text{-}CH_2CH_2\text{-}O\text{-}(CH_2)_m\text{-}\overset{\overset{O}{\|}}{C}\text{-}NH\text{-}(CH_2)_p\text{-}CH_2\text{-}NHT1249 \quad \textbf{(I)}$$

wherein

R_1 is a capping group,

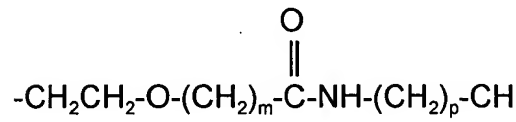
m is from 1 to 17,

n is from 10 to 1,000,

p is from 1 to 3, and

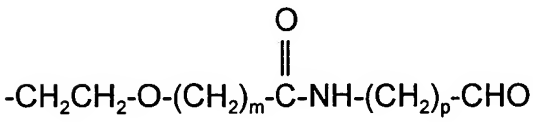
NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

38. A pharmaceutical composition according to claim 37, wherein R_1 is selected from the group consisting of halogen, epoxide, maleimide, orthopyridyl disulfide, tosylate, isocyanate, hydrazine hydrate, cyanuric halide, N-succinimidyloxy, sulfo-N-succinimidyloxy, 1-benzotriazolyloxy, 1-imidazolyloxy, p-nitrophenyloxy, and



$$-CH_2CH_2-O-(CH_2)_m-\overset{\overset{O}{\|}}{C}-NH-(CH_2)_p-CHO.$$

39. A pharmaceutical composition according to claim 37, wherein R_1 is



$$-CH_2CH_2-O-(CH_2)_m-\overset{\overset{O}{\|}}{C}-NH-(CH_2)_p-CHO.$$

40. A pharmaceutical composition according to claim 37, wherein R_1 is selected from the group consisting of hydrogen, hydroxy, lower alkyl, lower alkoxy, lower cycloalkyl, lower alkenyl, aryl, and heteroaryl.

41. A pharmaceutical composition according to claim 37, wherein R_1 is selected from the group consisting of methoxy, hydroxy, and benzyloxy.

42. A pharmaceutical composition according to claim 37, wherein R_1 is methoxy.

43. A pharmaceutical composition according to claim 37, wherein p is 3.

44. A pharmaceutical composition according to claim 43, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

45. A pharmaceutical composition according to claim 44, wherein m is from 1 to 14.

46. A pharmaceutical composition according to claim 45, wherein m is from 1 to 7.

47. A pharmaceutical composition according to claim 46, wherein m is from 1 to 4.

48. A pharmaceutical composition according to claim 44, wherein n is from 20 to 1,000.

49. A pharmaceutical composition according to claim 48, wherein n is from 50 to 1,000.

50. A pharmaceutical composition according to claim 49, wherein n is from 75 to 1,000.

51. A pharmaceutical composition according to claim 37, wherein p is 3, R_1 is methoxy, m is 1, and n is from 100 to 750.

52. A pharmaceutical composition according to claim 37, wherein p is 2.

53. A pharmaceutical composition according to claim 52, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

54. A pharmaceutical composition according to claim 52, wherein m is from 1 to 14.

55. A pharmaceutical composition according to claim 54, wherein m is from 1 to 7.

56. A pharmaceutical composition according to claim 55, wherein m is from 1 to 4.

57. A pharmaceutical composition according to claim 52, wherein n is from 20 to 1,000.

58. A pharmaceutical composition according to claim 57, wherein n is from 50 to 1,000.

59. A pharmaceutical composition according to claim 58, wherein n is from 75 to 1,000.

60. A pharmaceutical composition according to claim 37, wherein p is 2, R_1 is methoxy, m is 1, and n is from 100 to 750.

61. A pharmaceutical composition according to claim 37, wherein p is 1.

62. A pharmaceutical composition according to claim 61, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

63. A pharmaceutical composition according to claim 61, wherein m is from 1 to 14.

64. A pharmaceutical composition according to claim 63, wherein m is from 1 to 7.

65. A pharmaceutical composition according to claim 64, wherein m is from 1 to 4.

66. A pharmaceutical composition according to claim 61, wherein n is from 20 to 1,000.

67. A pharmaceutical composition according to claim 66, wherein n is from 50 to 1,000.

68. A pharmaceutical composition according to claim 67, wherein n is from 75 to 1,000.

69. A pharmaceutical composition according to claim 37, wherein p is 1, R_1 is methoxy, m is 1, and n is from 100 to 750.

70. A pharmaceutical composition according to claim 37 in the form of a lypholized powder.

71. A pharmaceutical composition according to claim 37 in the form of an injectable solution or suspension.

72. A pharmaceutical composition according to claim 51 in the form of a lypholized powder.

73. A pharmaceutical composition according to claim 52 in the form of an injectable solution or suspension.

74. A pharmaceutical composition according to claim 37, in unit dosage form.

75. A pharmaceutical composition according to claim 74, wherein the unit dosage form is an injectable solution or suspension.

76. A pharmaceutical composition according to claim 74, wherein the unit dosage form is a transdermal delivery device.

77. A pharmaceutical composition according to claim 51, in unit dosage form.

78. A pharmaceutical composition according to claim 77, wherein the unit dosage form is an injectable solution or suspension.

79. A pharmaceutical composition according to claim 77, wherein the unit dosage form is a transdermal delivery device.

80. A pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:

$$CH_3\text{-}O\text{-}(CH_2\text{-}CH_2\text{-}O)_n\text{-}CH_2\text{-}CH_2\text{-}O\text{-}CH_2\text{-}CH_2\text{-}CH_2\text{-}NHT1249 \quad \textbf{(III)}$$

wherein n is from 10 to 1,000 and NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

81. A pharmaceutical composition according to claim 80, wherein n is approximately 225.

82. A pharmaceutical composition according to claim 80, wherein n is approximately 450.

83. A method of inhibiting HIV infection comprising administering a pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:

$$R_1\text{-}(CH_2CH_2O)_n\text{-}CH_2CH_2\text{-}O\text{-}(CH_2)_m\text{-}\overset{\overset{O}{\|}}{C}\text{-}NH\text{-}(CH_2)_p\text{-}CH_2\text{-}NHT1249 \quad \textbf{(I)}$$

wherein

R_1 is a capping group,

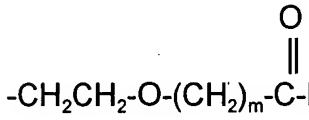
m is from 1 to 17,

n is from 10 to 1,000,

p is from 1 to 3, and

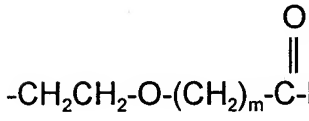
NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

84. A method according to claim 83, wherein R_1 is selected from the group consisting of halogen, epoxide, maleimide, orthopyridyl disulfide, tosylate, isocyanate, hydrazine hydrate, cyanuric halide, N-succinimidyloxy, sulfo-N-succinimidyloxy, 1-benzotriazolyloxy, 1-imidazolyloxy, p-nitrophenyloxy, and



$$-CH_2CH_2-O-(CH_2)_m-\overset{\overset{O}{\|}}{C}-NH-(CH_2)_p-CHO.$$

85. A method according to claim 83, wherein R_1 is



$$-CH_2CH_2-O-(CH_2)_m-\overset{\overset{O}{\|}}{C}-NH-(CH_2)_p-CHO.$$

86 A method according to claim 83, wherein R_1 is selected from the group consisting of hydrogen, hydroxy, lower alkyl, lower alkoxy, lower cycloalkyl, lower alkenyl, aryl, and heteroaryl.

87. A method according to claim 83, wherein R_1 is selected from the group consisting of methoxy, hydroxy, and benzyloxy.

88. A method according to claim 83, wherein R_1 is methoxy.

89. A method according to claim 83, wherein p is 3.

90. A method according to claim 89, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

91. A method according to claim 89, wherein m is from 1 to 14.

92. A method according to claim 91, wherein m is from 1 to 7.

93. A method according to claim 92, wherein m is from 1 to 4.

94. A method according to claim 89, wherein n is from 20 to 1,000.

95. A method according to claim 94, wherein n is from 50 to 1,000.

96. A method according to claim 95, wherein n is from 75 to 1,000.

97. A method according to claim 83, wherein p is 3, R_1 is methoxy, m is 1, and n is from 100 to 750.

98. A method according to claim 83, wherein p is 2.

99. A method according to claim 98, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

100. A method according to claim 98, wherein m is from 1 to 14.

101. A method according to claim 100, wherein m is from 1 to 7.

102. A method according to claim 101, wherein m is from 1 to 4.

103. A method according to claim 98, wherein n is from 20 to 1,000.

104. A method according to claim 103, wherein n is from 50 to 1,000.

105. A method according to claim 104, wherein n is from 75 to 1,000.

106. A method according to claim 83, wherein p is 2, R_1 is methoxy, m is 1, and n is from 100 to 750.

107. A method according to claim 83, wherein p is 1.

108. A method according to claim 107, wherein R_1 is selected from the group consisting of methoxy, hydroxy, or benzyloxy.

109. A method according to claim 107, wherein m is from 1 to 14.

110. A method according to claim 109, wherein m is from 1 to 7.

111. A method according to claim 110, wherein m is from 1 to 4.

112. A method according to claim 107, wherein n is from 20 to 1,000.

113. A method according to claim 112, wherein n is from 50 to 1,000.

114. A method according to claim 113, wherein n is from 75 to 1,000.

115. A method according to claim 83, wherein p is 1, R_1 is methoxy, m is 1, and n is from 100 to 750.

116. A method according to claim 83, wherein the pharmaceutical composition is administered by injection.

117. A method according to claim 116, wherein the pharmaceutical composition is injected intraperitoneally, intramuscularly, subcutaneously, intravenously, or by continuous infusion.

118. A method according to claim 117, wherein the pharmaceutical composition is injected subcutaneously.

119. A method according to claim 83, wherein the pharmaceutical composition is administered once a day.

120. A method according to claim 83, wherein the pharmaceutical composition is administered twice a week.

121. A method according to claim 83, wherein the pharmaceutical composition is administered once a week.

122. A method according to claim 83, wherein the pharmaceutical composition is administered every other day.

123. A method according to claim 83, wherein the pharmaceutical composition is administered twice a day.

124. A method according to claim 83, wherein the pharmaceutical composition is administered in an amount of from about 50 mg to about 300 mg per administration.

125. A method according to claim 83, wherein the pharmaceutical composition is administered in an amount of from about 100 mg to about 200 mg per administration.

126. A method according to claim 97, wherein the pharmaceutical composition is administered by injection.

127. A method according to claim 126, wherein the pharmaceutical composition is injected intraperitoneally, intramuscularly, subcutaneously, intravenously, or by continuous infusion.

128. A method according to claim 127, wherein the pharmaceutical composition is injected subcutaneously.

129. A method according to claim 97, wherein the pharmaceutical composition is administered once a day.

130. A method according to claim 97, wherein the pharmaceutical composition is administered twice a week.

131. A method according to claim 97, wherein the pharmaceutical composition is administered once a week.

132. A method according to claim 97, wherein the pharmaceutical composition is administered every other day.

133. A method according to claim 97, wherein the pharmaceutical composition is administered twice a day.

134. A method according to claim 97, wherein the pharmaceutical composition is administered in an amount of from about 50 mg to about 300 mg per administration.

135. A method according to claim 134, wherein the pharmaceutical composition is administered in an amount of from about 100 mg to about 200 mg per administration.

136. A method of inhibiting HIV infection comprising administering a pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:

$$CH_3\text{-}O\text{-}(CH_2\text{-}CH_2\text{-}O)_n\text{-}CH_2\text{-}CH_2\text{-}O\text{-}CH_2\text{-}CH_2\text{-}CH_2\text{-}NHT1249 \quad \textbf{(III)}$$

wherein n is from 10 to 1,000 and NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

137. A method according to claim 136, wherein n is approximately 225.

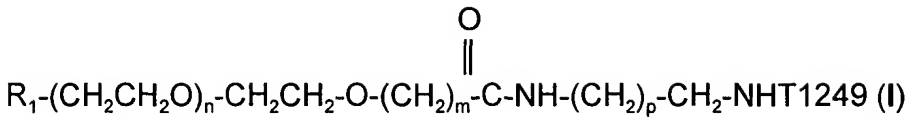
138. A method according to claim 136, wherein n is approximately 450.

139. A method according to claim 136, wherein the pharmaceutical composition is administered in an amount of from about 300 mg to about 1500 mg per week in a single dose.

140. A method according to claim 139, wherein the pharmaceutical composition is administered in an amount of from about 400 mg to about 1000 mg per week in a single dose.

141. A method according to claim 140, wherein the pharmaceutical composition is administered in an amount of from about 500 mg to about 800 mg per week in a single dose.

142. A compound of formula:



wherein

R_1 is methoxy,

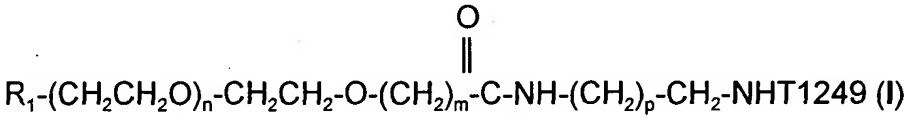
m is 1,

n is from 100 to 750,

p is 3, and

NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

143. A pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:



wherein

R_1 is methoxy,

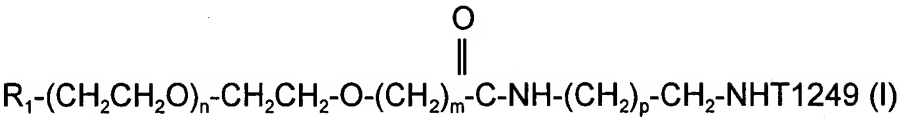
m is 1,

n is from 100 to 750,

p is 3, and

NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

144. A method of inhibiting HIV infection comprising administering a pharmaceutical composition comprising, in admixture with a pharmaceutically acceptable excipient, a compound of formula:



$$R_1\text{-}(CH_2CH_2O)_n\text{-}CH_2CH_2\text{-}O\text{-}(CH_2)_m\text{-}C(=O)\text{-}NH\text{-}(CH_2)_p\text{-}CH_2\text{-}NHT1249 \quad (I)$$

wherein

R_1 is methoxy,

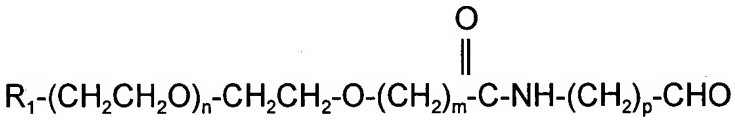
m is 1,

n is from 100 to 750,

p is 3, and

NHT1249 is a T1249 polypeptide covalently bonded through its terminal α-amino group.

145. A method for attaching a polyethylene glycol molecule to a T1249 polypeptide comprising reacting a T1249 polypeptide with a polyethylene glycol aldehyde of formula:



$$R_1\text{-}(CH_2CH_2O)_n\text{-}CH_2CH_2\text{-}O\text{-}(CH_2)_m\text{-}C(=O)\text{-}NH\text{-}(CH_2)_p\text{-}CHO$$

wherein

R_1 is a capping group,

m is from 1 to 17,

n is from 10 to 1,000, and

p is from 1 to 3;

to produce a compound of formula:

$$R_1\text{-}(CH_2CH_2O)_n\text{-}CH_2CH_2\text{-}O\text{-}(CH_2)_m\text{-}CO\text{-}NH\text{-}(CH_2)_p\text{-}CH_2\text{-}NH\text{-}T1249 \quad (I)$$

wherein the polyethylene glycol aldehyde molecule is bonded to the N-terminal amino group of the T1249 polypeptide.

146. A method according to claim 145 wherein the T1249 polypeptide is reacted with the polyethylene glycol molecule at a pH sufficiently acidic to selectively activate the α–amino group at the amino terminus of the polypeptide.

147. A method according to claim 145 wherein the pH is from about 5.5 to about 7.4.

148. A method according to claim 147 wherein the pH is about 6.5.

149. A method according to claim 145 further comprising isolating the pegylated T1249 polypeptide.